

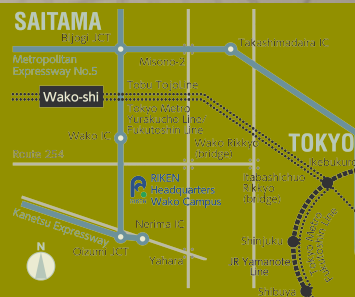
iTHES Theoretical Science Colloquium

**Geometry before Euclid:
How Life Explored and
Conquered the
Dimensionality of 3-Space**



Prof. Robert Sinclair
(Okinawa Institute of Science
and Technology)

June 18th (Wed.) 14:00 ~
Nishina Hall
RIKEN Wako campus



Modern animals develop in three-dimensional space, using complex coordinate systems to coordinate the growth of complex structures such as internal organs and appendages. Precambrian animals seem to have achieved a progression from one to two dimensional body plans over a period of approximately one billion years, with evidence of linear and then fractal-like body plans (exploring dimensionalities intermediate between one and two), before the appearance of regular disk-like body plans. I wish to present a hypothesis: That the development of coordinate systems lagged behind in this progression, and will present a mathematical model of a body plan of Dickinsonia type which has only a single coordinate (uses only a single growth inhibiting factor or morphogen) to produce a two dimensional body. I will close with some comments on the relationship between the structure of human memory and the dimensionality of the space we live in.

The colloquium comprises three short talks by the iTHES members in addition to Prof. Sinclair's lecture:

- 14:00- S. Wanajo (iTHES-phys)
- 14:15- Y. Kamiya (iTHES-cond)
- 14:30- W. Nishima (iTHES-bio)
- 14:45- 15:00 break
- 15:00- R. Sinclair (OIST)

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